DETAILED ACTION

1. Amendment filed on 01/04/10 is acknowledged. Claims 1-3 are withdrawn from consideration. Claims 4-10 are considered on merits.

Response to Amendment

2. All previous objections and rejections are sustained and rejection over the prior art is added.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings are very confusing. For example, Figure 1b) is supposed to show the rim 11a, which should be in-between the wall of the pit 13a and the receiving surface 5. However, it is impossible to see any rim in-between the wall and the surface, and it appears that the rim is a part of the wall. Moreover, it is not clear, how any of the wall, the pit, the bottom of the pit, or the sample receiving surface can have different hydrophilic/hydrophobic properties, if they are all coated with the same hydrophobic layer 17?

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The annotation Fig. 1a) and Fig. 1b) should be changed to Figure 1: a) and b) and Fig. 2a), Fig. 2b), etc. to Figure 2: a), b), etc., since these are the unified figures, which cannot be separated.

Specification

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to as not containing "a written description of the invention ... in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same". In particular, it is not clear, what is defined as the rims 11a-11n of the pits 9a-9n. By definition, the "rim" is the outer curved part, which is supposed to outstand on the surface surrounding the pit, as it could be guessed from the first view of the substrate depicted on Figure 1a. However, on the side view Fig. 1b no rim outstanding from the surface of the substrate surrounding the pit can be seen. The surface of the substrate appears to be smooth, with no outstanding elements. It makes it unclear, as to what the rim is. The rim is presumably an important structural element of the target slide of the instant application, since it is exactly the rim that is supposed to be hydrophobic. It is not really clear, whether the rim is a part of the substrate surface, or a part of the pit wall. Since the pit is a shallow well on the substrate, and the rim is supposed to be a part of the pit, the examiner considers the rim to be the part of the pit wall, since there is no other place, which can be called the rim. The drawing does not show any place between the surface of the slide and the wall of the pit, which can be called the rim. Furthermore, according to Figures 1b) and Figures 2a)-2)e there is a continuous coating for the pit and the surrounding surface, so it is even mess clear, as to which rim the specification discloses. Furthermore, as it is indicated above, Figure 1b) is supposed to show the rim 11a, which should be in-between the wall of the pit 13a and the receiving surface 5. However, it is impossible to see any rim in-between the wall and the surface, and it appears that the rim is a part of the wall. Moreover, it is not clear, how any of the wall, the pit, the bottom of the pit, or the sample receiving surface can have different hydrophilic/hydrophobic properties, if they are all coated with the same hydrophobic layer 17? The disclosure regarding the structure of the target slide is very confusing.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4-10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite the rim between the sample receiving surface and the wall of the pit, which is not a clear definition, since the specification does not describe and the drawings do not show any space between the sample receiving surface and the wall of the pit. Furthermore, the drawings clearly indicate the uniform coating in the pit and on the substrate surface, which makes it even less clear, as to what the rim really is. This renders the claims unclear and indefinite. For the purpose of examination the examiner considers the rim a part of the wall of the pit.

Furthermore, claim 4 recites at least one pit less than 1 mm wide, but does not recite any other dimension of the pit, such as the pity depth, which makes it unclear, as to what sizes pits are recited in the claim.

Claim 7 recites the limitation that the pit is more than 5 μm deep, which does not have any upper limit, which therefore can be any number. This renders the claim unclear and indefinite, since it is not clear, which is the range for the pit depth.

From claim 8 it is not apparent, whether the substrate, which has a hydrophobic surface, is additionally coated with another hydrophobic coating. From claim 9 it is not clear, whether the coating thickness depends on the pit depth. Since the parent claims do not recite any range for the pit depth, this renders the claim unclear and indefinite, since the coating thickness apparently should depend on the pit depth.

From claim 10 it is not clear, whether there is an additional layer of the hydrophobic material besides the one which coats the surface of the substrate, or this is the same layer and the same material. Also it is not apparent, which thickness of the layer is recited in the claim, and which should be the depth of the pit to have such specific coating.

Furthermore, it appears that it would have been impossible to have a coating of 0.1 mm thick for the sizes of the pit recited in claims 6 and 7.

Since microtiter plates, which can be used for mass spectrometry, are conventionally made of hydrophobic polystyrene (see below), claims 8-10 cannot be reasonably interpreted, since it is not apparent, which material can be used for coating hydrophobic polystyrene, and which thickness of coating should be used for which depth of the pit.

In general, the separate dimensions given in different dependent claims do no allow understanding any embodiment for the target slide as a whole.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claims 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Niggemann et al. (Microsystem Technologies, 1999) (Niggemann).

Niggemann discloses a microtiter plate with pits (wells) of diameter 1 mm (see Table 1) made of polystyrene, which is considered to be a hydrophobic plastic. It would have been obvious for a person of ordinary skill in the art to have wells less than 1 mm width.

12. **Claims 6-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Niggemann in view of Little et al. (US 7,232,688) (Little).

Niggemann discloses the microtiter plate with wells having width 1 mm and volume 0.9 µl the height of the well is less than 1 mm, but over 100 µm.

Little discloses MALDI silicon multiwell plate with 100 chemically etched wells e.g. inverted flat top pyramidal geometry having 100 µm depth (col. 16, lines 44-45).

It would have been obvious for a person of ordinary skill in the art to modify Niggemann's microtiter plates to adjust the height of the wells as disclosed by Little in order to use less analyte.

Response to Arguments

13. Applicant's arguments filed 01/04/10 have been fully considered but they are not persuasive. Regarding re-submitted drawing - first of all, the annotations Fig. 1a) and Fig. 1b) remained, while the previous Office action stated that the drawing was supposed to be the same Figure 1 with two different parts a) and b). Correction is required. Second, the examiner still does not understand, what the "rim" is. The "rim" is supposed to be a special structural element, such as e.g. a border around the well, which outstands from the substrate surface. The rim cannot be a corner between the wall of the well and the surface of the substrate, since this is an inherent feature to any structure having well in the substrate. Therefore, it is totally unapparent, as to which "rim" the Applicants refer to.

As to the Applicants' explanation of the hydrophobic properties of different sections, none of the pending claims recites the layer which extends through the whole substrate including pits. Furthermore, the separate dimensions given in different dependent claims do no allow understanding any embodiment as a whole. Also, it would be an undue experimentation for a person of ordinary skill in the art to obtain a target slide with pits having depth less than 100 µm with the hydrophobic layer of the same thickness without any guidance provided in the disclosure.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (571) 272-1257. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Y. Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

03/28/2010

/Yelena G. Gakh/
Primary Examiner, Art Unit 1797